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TO: USPTO

FACSIMILE NO.: (571) 273-8300

FROM: GARY P. OAKESON

TRANSMITTED BY: BRENDA WISEMAN

OUR DOCKET NO.: 200315617-1

FOR: INK COMPOSITIONS FOR USE IN HIGHLIGHTER MARKERS AND
ASSOCIATED METHODS

SUBJECT: APPEAL BRIEF under 37 C.F.R. § 41.37

Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

Attached please find an Appeal Brief under 37 C.F.R. § 41.37 for Docket No.
200315617-1, Application No. 10/696,344.

Thank you. We await your confirmation of receipt.

Respectfully submitted,



Gary P. Oakeson
THORPE NORTH & WESTERN, LLP
Customer No. 20,551
Reg. No. 44266

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PATENT APPLICATION

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

ATTORNEY DOCKET NO. 200315617-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Christian Schmid
Application No.: 10/696,344
Filing Date: 10/29/2003

Confirmation No.: 8104
Examiner: Manish S. Shah
Group Art Unit: 2853

Title: Ink Compositions for Use In Highlighter Markers and Associated Methods

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on June 16, 2008.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) \$500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month
\$120

☐ 2nd Month
\$450

☐ 3rd Month
\$1020

☐ 4th Month
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☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of \$ 500. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

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Typed Name: Branda Wiseman

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Respectfully submitted,

Christian Schmid

By Gary P. Oakeson

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Rev 10/00a (April/04)

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PATENT APPLICATION

HEWLETT-PACKARD COMPANY
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P.O. Box 272400
Fort Collins, Colorado 80527-2400ATTORNEY DOCKET NO. 200315617-1IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

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Respectfully submitted,

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Rev 10/01/06 (Antifer)

APPEAL BRIEF

Docket No. 200315617-1

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APPELLANT:	Christian Schmid	CERTIFICATE OF DEPOSIT UNDER 37 C.F.R. § 1.8 I hereby certify that this correspondence is being transmitted via facsimile to the USPTO or being deposited with the United States Postal Service with sufficient postage as first class postage in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below. <u>07/02/2008</u> Date of Deposit <i>Brenda Wiseman</i> Brenda Wiseman
SERIAL NO.:	10/696,344	
FILING DATE:	10/29/2003	
CONF. NO.:	8104	
FOR:	INK COMPOSITIONS FOR USE IN HIGHLIGHTER MARKERS AND ASSOCIATED METHODS	
ART UNIT:	2853	
EXAMINER:	Manish S. Shah	
DOCKET NO.:	200315617-1	

APPELLANTS' APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Mail Stop Appeal Brief -- Patents

Sir:

Appellants submit this Appeal Brief in connection with their appeal from the final rejection of the Patent Office, mailed March 24, 2008, in the above-identified application.

A Notice of Appeal was filed on June 16, 2008, which was received by the Board of

Appeals on June 16, 2008.

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I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, L.P., a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

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II. RELATED APPEALS AND INTERFERENCES

Appellants and Appellants' legal representatives know of no other appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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III. STATUS OF CLAIMS

Claims 1-32 remain pending and have been rejected. The claims on appeal in this application are claims 1-32.

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IV. STATUS OF AMENDMENTS

No amendments to the presently pending claims have been made since the Office Action mailed on March 24, 2008, by which the final rejection of the pending claims was made.

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V. SUMMARY OF CLAIMED SUBJECT MATTER

1. A highlighter ink composition (page 2, line 13; page 5, line 16), comprising:

- a) an acid buffer having a pKa from about 2 to about 6 (page 2, lines 13-14; page 5, lines 17, 25-26);
- b) a highlighter colorant (page 2, line 14; page 5, lines 17-18) that is an acid-functionalized pigment (page 6, line 23) or a fluorescent colorant (page 6, line 20); and
- c) a liquid vehicle (page 2, line 14; page 5, line 18).

13. A method of reducing print smear during highlighting (page 2, lines 21-23; page 5, lines 20-22), comprising the steps of:

- a) ink-jet printing an ink-jet ink to form an image on a substrate (page 8, lines 9-10, 14, 22-23);
- b) applying a highlighter composition to the image (page 7, lines 19-20), said highlighter composition including an acid buffer having a pKa from about 2 to about 6 (page 2, lines 13-14; page 5, lines 17, 25-26), a highlighter colorant that is an acid-functionalized pigment (page 6, line 23) or a fluorescent colorant (page 6, line 20), and a liquid vehicle (page 2, line 14; page 5, line 18).

19. A smear resistant highlighter system (page 8, lines 19-20), comprising:

- a) an ink-jet ink printed on a substrate (page 8, lines 9-10, 14, 22-23), said ink-jet ink comprising an ink-jet colorant (page 8, lines 28-32); and
- b) a highlighter composition comprising an acid buffer having a pKa from about 2 to about 6 (page 2, lines 13-14; page 5, lines 17, 25-26), a highlighter colorant that is an acid-functionalized pigment (page 6, line 23) or a fluorescent colorant (page 6, line 20), and a liquid vehicle (page 2, line 14; page 5, line 18), wherein said acid buffer is configured for reducing mobility of the ink-jet colorant (page 2, lines 20-21).

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues presented for review are:

- a. whether claims 1-2, 4-7, 9-12, and 27-28 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Japanese Pat. No. 63-061065 (hereinafter "Pentel") in view of U.S. Pub. No. 2003/0226474 (hereinafter "Mammen");
- b. whether claims 3 and 8 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Pentel in view of Mammen and further in view of U.S. Pat. No. 5,279,652 (hereinafter "Kaufmann");
- c. whether claims 13-18 and 29-30 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Mammen in view of Pentel and Kaufmann; and
- d. whether claims 19-26 and 31-32 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Mammen in view of Pentel and Kaufmann.

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VII. ARGUMENT

A. Appellants' invention

Appellants' invention provides compositions, methods, and systems directed towards a highlighter ink composition, comprising an acid buffer having a pKa from about 2 to about 6, a highlighter colorant that is an acid-functionalized pigment or a fluorescent colorant, and a liquid vehicle.

B. The Asserted References

1. The Pentel Reference

The Pentel abstract (English translation) states that the purpose of its composition is to keep a highlighter pen tip "slightly drying" "even if the cap is kept removed for a long time." See Abstract. Notably, the abstract does not disclose any purpose or intent that the invention was to reduce smearing of highlighted images, nor does it provide any results or teachings that it would indicate reduction of smear. Pentel discloses an ink composition containing 3 components: "a coloring material, an organic solvent, and a specific ascorbic acid derivative." Id. The Pentel abstract provides a couple of examples for each component including "coloring material (e.g. dye pigment, etc.)," "organic solvent (e.g. ethanol, methyl ethyl ketone, ethyl acetate, benzene, Cellosolve, etc.)," and "0.5W3wt% compound (e.g. ascorbic acid, dipalmitate of ascorbic acid, magnesium salt of ascorbic acid phosphoric ester, etc.)." Id. Even though Appellants have requested an English translation of the Pentel patent be provided to determine whether the compositions of Pentel read on the present claims, the Examiner has refused to do so.

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2. The Mammen Reference

Mammen teaches a smear-resistant ink composition comprising water, a glycol, a pyrrolidone, and a colorant that produces a detectable fluorescent color. See Abstract. Mammen teaches that "the ink composition can further comprise a basic color stabilizer to adjust the pH and keep the pH relatively alkaline range in order to ensure that the dyes used retain their color." See [0102].

3. The Kaufmann Reference

Kaufmann teaches the addition of an anti-blocking additive to a marking fluid to keep the marker tip from drying out. See Abstract. Specifically, Kaufmann claims its invention is "directed to the use of solids as anti-blocking additives in common marking fluids . . . to provide a protecting and the evaporation hindering closure of the open, unprotected and unused capillary outlet opening." See col. 1, lines 9-14. Kaufmann defines the problem as "the capillary opening" becomes "clogged or plugged due to the drying of the marking fluid." See col. 1, lines 20-22. The solution requires an anti-blocking additive that "has the ability to crystallize out of the solvent" so that a "liquid crystalline to solid boundary [forms] hinder[ing] the evaporation of the solvent marking fluid." See col. 2, lines 20-22; col. 3, lines 12-14. Kaufmann discloses that one anti-blocking agent can be an organic acid, including succinic acid. See col. 4, lines 43-45, 63.

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C. Rejections Under 35 U.S.C. § 103(a)

1. Requirements for Prima Facie obviousness

The Examiner has rejected all of the pending claims under § 103(a) as being *prima facie* obvious over a number of references. The Patent and Trademark Office (PTO), through the Examiner, has the burden of establishing a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1998). To satisfy this burden, the PTO must meet the criteria set out in M.P.E.P. § 706.02(j):

[T]hree basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Moreover, the obviousness analysis must comply with the statutory scheme as explained by the Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966), namely, consideration must be given to: (1) the scope and content of the prior art, (2) the differences between the prior art and the claimed invention, (3) the level of ordinary skill in the pertinent art, and (4) additional evidence, which may serve as indicia of non-obviousness.

An excellent summary of how the prior art must be considered to make a case of *prima facie* obviousness is contained in *In re Ehrreich et al.*, 220 U.S.P.Q. 504, 509-511 (CCPA 1979). There the court states that a reference must not be considered in a vacuum, but against the background of the other references of record. It is stated that the question of a § 103 case is what the reference(s) would "collectively suggest" to one of

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ordinary skill in the art. However, the court specifically cautioned that the Examiner must consider the entirety of the disclosure made by the reference and avoid combining them indiscriminately.

In finding that the "subject matter as a whole" would not have been obvious in *Ehrreich* the court concluded:

"Thus, we are directed to no combination of prior art references which would have rendered the claimed subject matter as a whole obvious to one of ordinary skill in the art at the time the invention was made. The PTO has not shown the existence of all the claimed limitations in the prior art or any suggestion leading to their combination in the manner claimed by applicants." (underlining added)

It has been widely recognized that virtually every invention is a combination of elements and that most, if not all, of these will be found somewhere in an examination of the prior art. This reasoning lead the court, in *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193, 199 (Fed. Cir. 1983) to state:

"...it is common to find elements or features somewhere in the prior art. Moreover, most if not all elements perform their ordained and expected function. The test is whether the claimed invention as a whole, in light of all the teachings of the references in their entireties, would have been obvious to one of ordinary skill in the art at the time the invention was made." (underlining added)

With the above background in mind, Appellants contend that the Examiner has not met this burden with respect to any of the claims on appeal. Particularly, Appellants submit that the PTO has failed to show that each and every element of the claimed invention is contained in the combined references. Appellants now turn to a discussion of the individual rejections at issue, and the references on which they are based.

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2. The rejection of claims 1-2, 4-7, and 9-12 over Pentel in combination with Mammen

According to M.P.E.P. § 706.02(j), to render a claim *prima facie* obvious, the asserted prior art reference (or references when combined) must teach or suggest all of the claim limitations. Appellants submit that neither of the combinations asserted by the Examiner teach or suggest each and every element of the rejected claims.

The Examiner has used Pentel as a primary reference in combination with Mammen in rejecting claims 1-2, 4-7, 9-12, and 27-28. The Examiner identifies that Pentel lacks the teaching of (1) highlighter colorant is an acid functionalized pigment or a fluorescent colorant, (2) water or diethylene glycol as a liquid vehicle, and (3) Acid Blue 9 as a highlighter colorant.

The Examiner combines Pentel with Mammen to address the three deficiencies; specifically, the fluorescent colorant, water or diethylene glycol, and the Acid Blue 9. However, the combination of Pentel and Mammen does not teach an acid buffer having a pKa from about 2 to about 6 in combination with a highlighter colorant that is an acid-functionalized pigment or a fluorescent colorant.

Appellants submit that the Examiner has not shown the each and every element of the pending claims. Specifically, Appellants submit that the element of an acid buffer is not present in Pentel or Mammen. Pentel discloses a compound that is "a specific ascorbic acid derivative" in a range from 0.5 wt% to 3 wt%. See Abstract. Pentel never mentions for what purpose the compound is used. There is absolutely no teaching for what purpose or for what function the ascorbic acid derivative is used. The only information provided is that the purpose of the invention is to keep the pen point slightly

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drying. As such, Pentel does not disclose or teach the element of a compound that is formulated with a composition as a whole which acts as an acid buffer. The fact that ascorbic acid may be used as an acid buffer does not provide *prima facie* evidence that the ascorbic acid is in fact an acid buffer. In fact, since Pentel discloses an equivalent compound, magnesium salt of ascorbic acid, as an appropriate ascorbic acid derivative, which could not be used as an acid buffer, the disclosed list indicates that the ascorbic acid derivative is not being used as an acid buffer. In other words, Appellants submit that since Pentel lists specific ascorbic acid derivatives that do not have the recited pKa from about 2 to about 6 or that could be used as an acid buffer within the definition set forth in the present specification, which is further discussed below, Pentel does not teach the element of an acid buffer.

The Examiner has repeatedly responded to the above argument, alleging that as long as the reference contains the same chemicals, it works the same and "solves the same purpose." See Final Office Action, dated March 24, 2008, page 7, paragraph 6; Advisory Action, dated March 24, 2008, page 2, paragraph 2. However, such an assertion does not represent an accurate restatement of the law in this area. In the chemical arts, a compound may function in one way in one composition and in another manner in second composition, depending on the specific components present. Specifically, in this case, the compositions do not contain the same elements for the same purposes. Additionally, the disclosure of a chemical in a composition must be considered in terms of the functionality of the chemical, because a chemical can be used for vastly different purposes. For example, boric acid can be used as a cross-linking agent for polymers or as a base-neutralizer. As such, if boric acid is used as a cross-linker, it is

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consumed during the cross-linking reaction and then cannot be used to neutralize a base. Therefore, a single chemical can be used for vastly different purposes (depending on the chemical context of other ingredients, concentrations, etc.), and such context must be taken into consideration when combining references. This is especially true in the present case, since the disclosure of Pentel is lacking, and since what is disclosed by Pentel indicates that the purpose of the acid is not as a buffer. In fact, with some speculation (to illustrate the broader point), Pentel may very well use the "specific ascorbic acid derivative" as a thin crystal membrane to keep the tip from drying out, similar to the mechanism disclosed by Kauffman. As such, if the acid is used as a thin crystal membrane, the acid leaves the solvent and becomes a solid. Such a phase change would prevent the acid from actively stabilizing the marking fluid and preventing smear.

The Examiner has also responded to the above arguments in the Advisory Action, dated June 5, 2008, stating that the Applicant has not claimed why "they use ascorbic acid" and "applicant has to claim why they using [sic] ascorbic acid." See page 2, paragraph 2. However, Appellants have claimed the function not just the compound. Specifically, each independent claim claims an acid buffer. Appellants submit that only the dependent claims refer to specific acids. The Examiner further alleges that Appellants have disclosed in the specification that the acid buffer is ascorbic acid. However, Appellants submit that the Examiner is mistaken. Specifically, Appellants have defined an acid buffer in the specification as "a chemical compound or compounds in a composition which act to maintain the pH in a desired acidic range." See page 3, lines 17-19. Appellants further identify and claim that the acid buffer can be a weak acid having a pKa from about 2 to about 6, or can be a weak acid further including a weak

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base. See claims 1, 13, 19, and 27-32. As such, the Appellants submit that the functionality has been claimed and adequately defined in the specification. Therefore, Appellants submit that merely identifying a weak acid does not inherently provide an acid buffer as defined, especially if the weak acid is used for a conflicting purpose, such as an anti-blocking agent or neutralizer, as discussed above.

Further, Appellants submit that Mammen teaches away from the addition of acids. Mammen explicitly states that the pH may be adjusted in an alkaline range. Thus, Appellants contend that the combination of Pentel and Mammen (with or without Kaufman is improper). A proper 103 rejection must provide a combination of references that would give a likelihood of success at achieving the present invention. In this case, Mammen could not be combined with any acid-containing highlighter ink composition, since Mammen specifically teaches away from such compositions. Specifically, Mammen states "the ink composition can further comprise a basic color stabilizer to adjust the pH and keep the pH relatively alkaline range in order to ensure that the dyes used retain their color" (underlining added). See [0102].

As the Appellants have raised the issue of teaching away, Appellants would like to review the current case law regarding teaching away for the Board's convenience. The Court of Appeals for the Federal Circuit has clearly stated that "an applicant may rebut a *prima facie* case of obviousness by showing that the prior art teaches away from the claimed invention in any material respect." In re Petersen, 315 F.3d 1325, 1331 (Fed. Cir. 2003). The Court has also stated that "[w]e have noted elsewhere, as a 'useful general rule,' that references that teach away cannot serve to create a *prima facie* case of obviousness." (emphasis added) McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1354

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(Fed. Cir. 2001). In identifying the appropriate standard for teaching away, the Court has further stated:

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be **discouraged from following the path set out in the reference**, or would be led in a direction divergent from the path that was taken by the applicant. The degree of teaching away will of course depend on the particular facts; in general, **a reference will teach away if it suggests that the line of development** flowing from the reference's disclosure **is unlikely to be productive** of the result sought by the applicant." (emphasis added) In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994).

In the present case, a person of ordinary skill in the art would be discouraged from adding a composition that contains acid, such as that described in Pentel, to Mammen's composition since Mammen specifically states that the pH range is adjusted in the alkaline range. Based on this explicit statement, Mammen teaches away from Pentel (and Kaufmann) as it would discourage a person of ordinary skill in the art to combine acid to a highlighter composition and since it requires that the pH range of the highlighter composition should be basic.

The Examiner has responded to the above argument in the Advisory Action, dated June 5, 2008, stating that "Mammen didn't disclose [sic] that the addition of acid is not good." See page 2, paragraph 4. Such an argument lacks merit since the addition of acid to a basic composition would clearly destroy the functionality of the Mammen reference. Additionally, Appellants submit that based on the case law regarding teaching away, one skilled in the art would be discouraged from adding acid to a basic composition.

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Additionally, it is worth noting that the order of the combination is not a factor in the current case law regarding teaching away. Specifically, Appellants contend that the case law is valid regardless of whether Mammen is the primary reference or the secondary reference, as it still teaches away from allowing for the presence of acid, making the combination improper.

Appellants note that the Examiner has argued that Mammen was used to teach water, diethylene glycol, and a fluorescent colorant, and therefore, the combination is obvious. However, the Appellants submit that the references must be viewed as what they would teach as a whole. In other words, the present teaching away case law remains applicable because one skilled in the art would not combine the teachings of Mammen with Pentel as each reference provides a composition that is incompatible with each other; i.e., one teaches an acidic composition and one teaches a basic composition. Such teachings read upon the present teaching away, since one skilled in the art would be discouraged from following the path set out in the reference.

Additionally, the Appellants note that the MPEP §706.02(II) states "[b]ecause all patentability determinations are fact dependent, obtaining and considering full text documents at the earliest practicable time in the examination process will yield the fullest available set of facts upon which to determine patentability, thereby improving quality and reducing pendency." Accordingly, Appellants have requested either Examiner withdraw the rejections of claims 1-32 based on Pentel (Japanese Pat. No. 63-061065), as the Examiner has not made a *prima facie* case of obviousness based upon the disclosure of the abstract, or provide Appellants with a full translation of the reference such that an appropriate determination can be made regarding patentability of the present

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claims based on the disclosure therein. Notably, the Examiner has failed to provide the translation.

Because the asserted combination fails to teach every element of claims 1-2, 4-7, and 9-12 and as Mammen teaches away from the present invention, Appellants submit that these claims present patentable subject matter, and that the rejections of these claims should be overturned.

3. The rejection of claims 27-28 over Pentel in combination with Mammen

According to M.P.E.P. § 706.02(j), to render a claim *prima facie* obvious, the asserted prior art reference (or references when combined) must teach or suggest all of the claim limitations. Appellants submit that neither of the combinations asserted by the Examiner teach or suggest each and every element of the rejected claims.

The Examiner has used Pentel as a primary reference in combination with Mammen in rejecting claims 27-28. The Examiner identifies that Pentel lacks the teaching of (1) highlighter colorant is an acid functionalized pigment or a fluorescent colorant, (2) water or diethylene glycol as a liquid vehicle, and (3) Acid Blue 9 as a highlighter colorant.

Appellants renew the above arguments present in subsection 2 of the present section with respect to the present claims. In short, Pentel does not teach each and every element of the pending claims as it does not teach an acid buffer. Additionally, Mammen teaches away from Pentel.

Appellants wish to address the Examiner's assertion that Pentel teaches "the acid buffer includes a weak acid or weak base." See Final Office Action, dated March 24,

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2008, page 2. Appellants contend that Pentel does not disclose an acid buffer further containing a weak acid or weak base. Pentel clearly identifies individual compounds and provides absolutely no disclosure of an acid buffer that further includes a weak acid or weak base. Notably, Appellants requested that the Examiner provide the exact language of the alleged buffer system including the weak acid or weak base, so the present issue can be clearly presented on appeal. However, the Examiner provided no such information in the Advisory Action, dated June 5, 2008, but merely referred to Appellants specification that the acid buffer can be a weak acid. Even though one embodiment of the present invention incorporates an acid buffer using a weak acid, Appellants submit that such an embodiment is immaterial to the embodiment describing the acid buffer as a weak acid further including a weak base.

Regarding the addition of a weak base, Appellants submit that even if the Examiner reads Pentel as disclosing an acid buffer, the listing of derivatives in the Pentel abstract indicates the compounds to be equivalent and singular. Therefore, the limited teachings of Pentel do not teach an acid buffer further including a weak base.

Therefore, Appellants submit that neither Pentel nor Mammen teach a weak acid as the acid buffer as recited in claim 27. Furthermore, Appellants submit that neither Pentel nor Mammen disclose an acid buffer having a weak acid and further including a weak base.

Because the asserted combination fails to teach every element of claims 27-28 and for the reasons set forth above, Appellants submit that these claims present patentable subject matter, and that the rejections of these claims should be overturned.

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4. The rejection of claims 3 and 8 over Pentel in combination with Mammen and Kaufmann

According to M.P.E.P. § 706.02(j), to render a claim *prima facie* obvious, the asserted prior art reference (or references when combined) must teach or suggest all of the claim limitations. Appellants submit that neither of the combinations asserted by the Examiner teach or suggest each and every element of the rejected claims.

Appellants renew the above arguments present in subsection 2 of the present section with respect to the present claims. In short, Pentel does not teach each and every element of the pending claims as it does not teach an acid buffer. Additionally, Mammen teaches away from Pentel and Kaufmann.

The Examiner has used Pentel as a primary reference in combination with Mammen in further view of Kaufmann in rejecting claims 3 and 8. The Examiner has admitted that the combination of Pentel and Mammen does not disclose the elements that the acid buffer is succinic acid and that the colorant is an acid functionalized pigment. The Examiner has used Kaufmann to address these admitted deficiencies.

However, a close inspection of the present references reveals that the use of an acid buffer is not present in either Pentel or Kaufmann. Specifically, as discussed above, Pentel does not disclose an acid buffer but rather "a specific ascorbic acid derivative" in a range from 0.5 wt% to 3 wt%. Regardless of Pentel's lack of teaching, the combination of Pentel and Kaufmann is clearly improper since Pentel requires the use of "a specific ascorbic acid derivative." The Examiner is attempting to improperly substitute a specific ascorbic acid derivative with succinic acid. The succinic acid of Kaufmann is not a specific ascorbic acid derivative, and as such, the substitution is improper.

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Even though the Examiner has assumed that such a substitution would be allowable, there is simply no disclosure that would justify such a position. In fact, as discussed above, Pentel explicitly recites "a specific ascorbic acid derivative," and therefore, Appellants submit that without further disclosure from Pentel such a substitution is improper. Appellants note that the failure of the Examiner to provide an English translation of Pentel limits such a broad, and seemingly contradictory, interpretation.

Furthermore, Kaufmann does not use succinic acid as an acid buffer. Even though the Examiner is attempting to use succinic acid to fulfill the acid buffer element, Kaufmann specifically states that succinic acid is an anti-blocking agent. In other words, Kaufmann describes an "antiblocking additive or solid" having an "ability to form crystals during the crystallisation [sic] process at or in, respectively, the capillary outlet opening in the solvent or solvent mixture employed" forming a "liquid crystalline to solid crystalline boundary hinder[ing] the evaporation of the solvent of the marking fluid." See col. 3, lines 3-14; col. 4, line 43. Kaufmann further states that the anti-blocking agent or solid can be "an inorganic salt, an organic acid or a derivative thereof, an amino acid or a derivative thereof, an isocyclic, polycyclic or heterocyclic compound or a derivative thereof, a sugar or a sugar alcohol or a derivative thereof, urea or a derivative thereof or a sulfur compound." See col. 4, lines 44-50. Clearly, anti-blocking agents are not interchangeable with acid buffers since sugar alcohols, urea, cyclic compounds, inorganic salts, and amino acids cannot be used as acid buffers. The Examiner is attempting to use an anti-blocking agent as an acid buffer; however, such a use is improper as these uses are not equivalent. The mere disclosure of a compound

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does not establish a *prima facie* case of obviousness. The Examiner must first show that an acid buffer is present in a reference and then must show that the acid buffer can be properly combined with an additional reference. The Examiner has not shown the existence of an acid buffer in Pentel or Kaufmann. Additionally, the Examiner has not shown that Kaufmann and Pentel can be properly combined. As such, the Appellants submit that the present combination does not teach each and every element of claim 3 and respectfully requests that the Examiner withdraw the present rejection.

The Examiner has also alleged that Kaufmann discloses an acid-functionalized pigment. The Examiner cites to col. 9, lines 40-50 of Kaufmann; however, even though the passage generally mentions inks having pigments, lines 48-49 explicitly state that additional dyes may be present. As such, it is unclear if the highlighter colorant is a dye or pigment. However, even though Appellants contend that the specific teaching of a highlighter colorant as a pigment has not been taught by Kaufmann, Appellants note that the claim element is an acid-functionalized pigment. Such an element is clearly not taught by Kaufmann. Appellants direct the Board to the Examples which, for the most part, identify the colorant as a dye. However, Appellants also note that even though Examples 1-4 and 6 identify the colorant as a dye and list specific dyes (including Direct Blue 199, Acid Blue 93, Solvent Red 122, and Solvent Black 3), Example 5 lists Pigment Red 112. Even so, such a disclosure, at most, teaches the use of a pigment in the highlighter composition but does not teach an acid-functionalized pigment as recited in claim 8. As such, Appellants submit that the present combination does not teach each and every element of claim 8.

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The Examiner has responded to the above arguments that "applicant didn't define or give any particular name of the acid functionalize pigment in the specification, and Kaufmann discloses the Pigment red 112. Therefore it is proper to combine Kaufmann with Pentel and Mammen." See Advisory Action, dated March 24, 2008, page 3, paragraph 7. Appellants submit that the lack of "names" is immaterial to whether Kaufmann's pigment qualifies as an acid functionalized pigment. Specifically, Appellants contend that either Pigment Red 112 is an acid functionalized pigment or it is not. In other words, acid functionalized pigments are well-known in the art and Appellants submit that Pigment Red 112 is also well-known in the art. Furthermore, Appellants submit that Pigment Red 112 refers to 3-Hydroxy-N-(2-Methylphenyl) 4-[(2,4,5 -Trichlorophenyl) Azo]-2-Naphthalene carboxamide, which notably is not acid functionalized. As such, Appellants submit that the present combination does not teach the each and every element of claim 8.

Because the asserted combination fails to teach every element of claims 3 and 8 and for the reasons set forth above, Appellants submit that these claims present patentable subject matter, and that the rejections of these claims should be overturned.

5. The rejection of claims 13-18 and 19-26 over Mammen in combination with Pentel and Kaufmann

According to M.P.E.P. § 706.02(j), to render a claim *prima facie* obvious, the asserted prior art reference (or references when combined) must teach or suggest all of the claim limitations. Appellants submit that neither of the combinations asserted by the Examiner teach or suggest each and every element of the rejected claims.

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The Examiner has rejected claims 13-18 and 19-26 using Mammen as the primary reference. However, these rejections only use the 3 references discussed above. As such, Appellants renew the arguments in subsections 2 and 4 of the present section with respect to these claims. Specifically, the Examiner has not shown that these references, alone or in combination, teach an acid buffer, teach that the acid buffer is succinic acid, or teach that the colorant is an acid-functionalized pigment. Furthermore, Appellants submit that the present combination of references is improper as Mammen explicitly teaches away from the use of acids.

Because the asserted combination fails to teach every element of claims 13-18 and 19-26 and for the reasons set forth above, Appellants submit that these claims present patentable subject matter, and that the rejections of these claims should be overturned.

6. The rejection of claims 29-30 and 31-32 over Mammen in combination with Pentel and Kaufmann

According to M.P.B.P. § 706.02(j), to render a claim *prima facie* obvious, the asserted prior art reference (or references when combined) must teach or suggest all of the claim limitations. Appellants submit that neither of the combinations asserted by the Examiner teach or suggest each and every element of the rejected claims.

The Examiner has rejected claims 29-30 and 31-32 using Mammen as the primary reference. However, these rejections only use the 3 references discussed above. As such, Appellants renew the arguments in subsections 2, 3, and 4 of the present section with respect to these claims. Specifically, the Examiner has not shown that these references, alone or in combination, teach an acid buffer, teach that the acid buffer is succinic acid,

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teach that the colorant is an acid-functionalized pigment, or teach that the acid buffer can include a weak acid and further include a weak base. Furthermore, Appellants submit that the present combination of references is improper as Manmen explicitly teaches away from the use of acids.

Because the asserted combination fails to teach every element of claims 29-30 and 31-32 and for the reasons set forth above, Appellants submit that these claims present patentable subject matter, and that the rejections of these claims should be overturned.

D. Conclusion

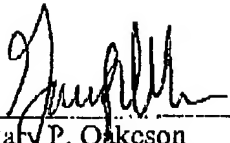
Appellants respectfully submit that the claims on appeal set forth in the Appendix are patentably distinct from the asserted prior art references. Particularly, none of the asserted combinations of references would teach one of ordinary skill in the art within the meaning of 35 U.S.C. § 103(a) to arrive at the presently claimed invention. Appellants contend that Shields in combination with Smith or Shields in combination with Smith and Yamamoto fail to teach each and every element of the claimed invention, and that a *prima facie* case of obviousness has not been established.

For at least these reasons, Appellants respectfully request that the Board of Appeals reverse the rejection and remand the case to the Examiner for allowance.

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Dated this 2nd day of July, 2008



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VIII. CLAIMS APPENDIX

1. (previously presented) A highlighter ink composition, comprising:
 - a) an acid buffer having a pKa from about 2 to about 6;
 - b) a highlighter colorant that is an acid-functionalized pigment or a fluorescent colorant; and
 - c) a liquid vehicle.
2. (original) The composition of claim 1, wherein said acid buffer is selected from the group consisting of succinic acid, citric acid, glutaric acid, acetic acid, beta-alanine, aspartic acid, ascorbic acid, and mixtures thereof.
3. (original) The composition of claim 2, wherein said acid buffer is succinic acid.
4. (original) The composition of claim 1, wherein said acid buffer has a pKa from about 4 to about 6.
5. (original) The composition of claim 1, wherein said acid buffer comprises from about 0.5 wt% to about 10 wt% of the composition.
6. (original) The composition of claim 5, wherein said acid buffer comprises from about 2 wt% to about 3 wt% of the composition.
7. (original) The composition of claim 1, wherein said highlighter colorant is selected from the group consisting of Basic Yellow 40, Acid Yellow 23, Acid Red 52, Acid Blue 9, and mixtures thereof.
8. (previously presented) The composition of claim 1, wherein said highlighter colorant is the acid-functionalized pigment.

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9. (previously presented) The composition of claim 1, wherein said highlighter colorant is the fluorescent colorant.

10. (original) The composition of claim 1, wherein said highlighter colorant comprises from about 0.5 wt% to about 20 wt% of the composition.

11. (original) The composition of claim 10, wherein said highlighter colorant comprises from about 1 wt% to about 10 wt% of the composition.

12. (original) The composition of claim 1, wherein said liquid vehicle comprises a member selected from the group consisting of water, diethylene glycol, polyethylene glycol, glycerol, dipropylene glycol, propylene glycol, polypropylene glycol, 2-pyrrolidinone, and mixtures thereof.

13. (previously presented) A method of reducing print smear during highlighting, comprising the steps of:

- a) ink-jet printing an ink-jet ink to form an image on a substrate;
- b) applying a highlighter composition to the image, said highlighter composition including an acid buffer having a pKa from about 2 to about 6, a highlighter colorant that is an acid-functionalized pigment or a fluorescent colorant, and a liquid vehicle.

14. (original) The method of claim 13, wherein said acid buffer is selected from the group consisting of succinic acid, citric acid, glutaric acid, acetic acid, beta-alanine, aspartic acid, ascorbic acid, and mixtures thereof.

15. (original) The method of claim 14, wherein said acid buffer is succinic acid.

16. (original) The method of claim 13, wherein said acid buffer has a pKa from about 4 to about 6.

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17. (original) The method of claim 13, wherein said highlighter colorant is selected from the group consisting of Basic Yellow 40, Acid Yellow 23, Acid Red 52, Acid Blue 9, and mixtures thereof.

18. (original) The method of claim 13, wherein said acid buffer is configured for reducing mobility of colorants in the ink-jet ink upon contact therewith.

19. (previously presented) A smear resistant highlighter system, comprising:

- a) an ink-jet ink printed on a substrate, said ink-jet ink comprising an ink-jet colorant; and
- b) a highlighter composition comprising an acid buffer having a pKa from about 2 to about 6, a highlighter colorant that is an acid-functionalized pigment or a fluorescent colorant, and a liquid vehicle, wherein said acid buffer is configured for reducing mobility of the ink-jet colorant.

20. (original) The system of claim 19, wherein said acid buffer is selected from the group consisting of succinic acid, citric acid, glutaric acid, acetic acid, beta-alanine, aspartic acid, ascorbic acid, and mixtures thereof.

21. (original) The system of claim 20, wherein said acid buffer is succinic acid.

22. (original) The system of claim 19, wherein said acid buffer has a pKa from about 4 to about 6.

23. (original) The system of claim 19, wherein said acid buffer comprises from about 0.5 wt% to about 10 wt% of the composition.

24. (original) The system of claim 23, wherein said acid buffer comprises from about 2 wt% to about 3 wt% of the composition.

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25. (original) The system of claim 19, wherein said ink-jet colorant is selected from the group consisting of as inorganic pigment, organic pigment, anionic water-soluble dye, and mixtures thereof.

26. (original) The system of claim 19, wherein said liquid vehicle comprises a member selected from the group consisting of water, dichylene glycol, polyethylene glycol, glycerol, dipropylene glycol, propylene glycol, polypropylene glycol, 2-pyrrolidinone, and mixtures thereof.

27. (previously presented) The composition of claim 1, wherein said acid buffer is a weak acid.

28. (previously presented) The composition of claim 1, wherein said acid buffer includes a weak base.

29. (previously presented) The method of claim 13, wherein said acid buffer is a weak acid.

30. (previously presented) The method of claim 13, wherein said acid buffer includes a weak base.

31. (previously presented) The system of claim 19, wherein said acid buffer is a weak acid.

32. (previously presented) The system of claim 19, wherein said acid buffer includes a weak base.

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IX. EVIDENCE APPENDIX

(No matter presented)

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X. RELATED PROCEEDINGS APPENDIX

(No matter presented)